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A single cDNA, hTFIIA/alpha, encodes both the p35 and p19 subunits of human TFIIA.

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Laboratory of Biochemistry and Molecular Biology, Rockefeller University, New York, New York 10021.

TFIIA is a transcription factor that, by interacting with the TATA-binding subunit (TBP) of TFIID, modulates transcription initiation by RNA polymerase II in vitro. By use of a mobility shift assay, TFIIA was purified from HeLa cells as a complex of 35-, 19-, and 12-kD subunits. Oligonucleotides were used to isolate a human cDNA clone, hTFIIA/alpha, which encodes a 55-kD protein with homology to the product of the yeast gene TOA1. The open reading frame of hTFIIA/alpha contains peptide sequences obtained from both the p35 and p19 subunits of natural human TFIIA, and thus encodes these two subunits. Consistent with this, antiserum raised against the 55-kD hTFIIA/alpha-encoded protein reacted with both the p35 and p19 subunits of natural TFIIA, and the recombinant protein could functionally replace those subunits in a mobility shift assay with renatured p12. An efficient affinity purification for natural human TFIIA was suggested by the sequence of the hTFIIA/alpha protein and demonstrated biochemically. Finally, transcription from the adenovirus major late promoter was greatly reduced in nuclear extracts depleted with anti-TFIIA/alpha serum and was restored to original levels by the readdition of purified human TFIIA.

PMID: 8224848 [PubMed - indexed for MEDLINE]

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